1. Scope

1.1 This Quality Procedure gives overall guidelines for conducting a manufacturing audit. It lists checklists necessary to ensure that all QA certificates are proper and only conforming product is used.

2. Referenced Documents

2.1 AGMA/AWEA 921-A97 Recommended Practices for Design and Specification of Gearboxes for Wind Turbine Generator Systems.

2.2 GEARTECH Specifications:

CK5000	QP5000	Quality assessment
CK6000	QP6000	Quality assurance plan
CK7000	QP7000	Manufacturing schedule
CK8000	QP8000	Manufacturing audit
CK8200	QP8200	Gear tooth cutting
CK8300	QP8300	Heat treatment of carburized gears
CK8400	QP8400	Gear tooth grinding
CK8500	QP8500	Gear tooth inspection

3. Terminology

3.1 Manufacturing audit- See QP5000.

3.2 Quality assurance certificate- Written documentation of inspection or test results certifying that inspections or tests were performed on actual product, raw material for actual product, coupons, or test specimens.

3.3 Conforming product- Product with certificates proving product was identified, inspected, tested, and found to be conforming to specified requirements.

3.4 Nonconforming product- Product with certificates proving product was identified, inspected, tested, and found to be nonconforming to specified requirements.

4. Significance and Use

4.1 Significance- A manufacturing audit ensures only conforming product is accepted, and quality goals are achieved.

4.2 QA plan- A manufacturing audit determines whether the QA plan is properly conceived, adequately documented, and properly implemented.

5. Procedure

5.1 QA plan- The inspections and tests specified in the QA plan shall be rigorously implemented (see CK8000).

5.2 Manufacturing schedule- The sequence for inspections and tests specified in the manufacturing schedule shall be adhered to (see CK7000 and QP7000).

5.3 Hold points- The hold points specified in the QA plan shall be rigorously enforced.

5.4 Inspected components- All components, as specified in the QA plan, shall be identified, inspected, and tested.

5.5 Conforming product- Only product with QA certificates proving conformance with the QA plan shall be accepted.

5.6 Nonconforming product- Nonconforming product shall be removed from the production area and placed in a controlled area to preclude its use. Nonconforming product shall be reworked or scraped.

5.7 Reworked product- Repairs shall be made with full knowledge of all departments concerned. Reworked product shall be controlled until required inspections and tests are completed. Only conforming product shall be returned to production flow.

5.8 Scraped product- Scraped product shall be mutilated to avoid returning it to production.

5.9 Documentation- All quality assurance records including QA certificates shall be adequately identified, stored, maintained, and distributed. QA records shall be current and readily accessible to the purchaser's representative at any time during manufacturing. Final QA records shall be delivered to the purchaser within the time specified in the procurement specification.

6. Interpretation of results

6.1 QA plan- The results of the manufacturing audit shall be evaluated to determine whether the QA plan is properly conceived, adequately documented, and properly implemented.

6.2 Nonconforming product- The causes of nonconformity shall be investigated, and corrective actions shall be identified.

6.3 Quality goals- The results of the manufacturing audit shall be evaluated to determine whether the QA plan is adequate to achieve the quality goals specified by the procurement specification.

7. Acceptance Criteria

7.1 Quality- All gearbox components shall be conforming product.

7.2 Specification conformance- All gearbox components shall conform to the requirements of the QA plan, engineering specifications, and the procurement specification.

8. Report

8.1 The report shall include the following:

8.1.1 Recommendations for revisions to the QA plan,

8.1.2 Recommendations for revisions to engineering specifications,

8.1.3 Recommendations for revisions to manufacturing processes,

8.1.4 List of nonconforming product including causes of nonconformity and corrective actions and,

8.1.5 Recommendations for follow-up audits to ensure corrective actions are successful.